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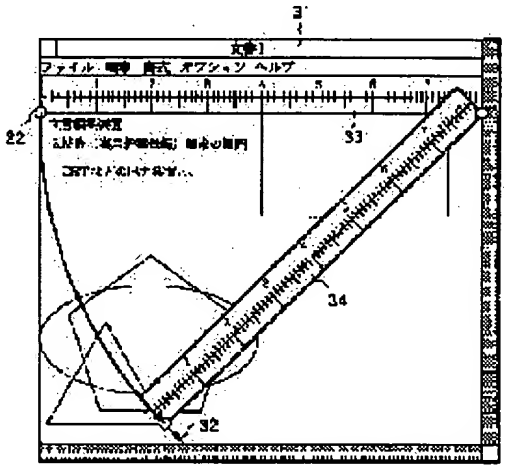
(71)Applicant : CANON INC
(72)Inventor : FUNAKOSHI MASANOBU

(54) DOCUMENT PROCESSOR AND DOCUMENT EDITING METHOD

(57)Abstract:
PROBLEM TO BE SOLVED: To provide a document processor and a document editing method which can save the printing forms and also can improve the document editing work efficiency of user by accurately measuring distance between two optional points set on a printed matter on a display screen.
SOLUTION: The document processor can display a produced document image in an image equivalent to a print image to be printed. That is, a real size display part 33 is shown on a document image shown on a display screen and then changed into the optional angle and length (32, 34). At the same time, the scales are shown at the part 33 to measure the rear size. In addition, the distance measurement points are shown and moved on the part 33, so that the scale base points shown at the part 33 are moved for measurement of the distances between these base points and measurement points.



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CLAIMS

[Claim(s)]
[Claim 1] The document-processing-system equipment which carries out [having a display means display the real size display which is document-processing-system equipment which can be displayed in the image equivalent to the printing image which prints the created document image, and expresses the real size on a printing image on the document image of a display screen, and a display modification means change said real size display into the include angle of arbitration, and] as the description.
[Claim 2] Document edit equipment according to claim 1 characterized by having further a die-length modification means to change the die length of said real size display elastically.
[Claim 3] Said display means is document processing system equipment according to claim 1 or 2 characterized by displaying further the graduation which can measure real size on said real size display.
[Claim 4] Said display means is document processing system equipment according to claim 3 characterized by having a radix point display means to display the radix point of said graduation on said real size display, and the radix point migration means to which said radix point is moved.
[Claim 5] Said display means is document processing system equipment according to claim 4 characterized by having further a ranging point display means to display the ranging point for measuring distance with said radix point on said real size display, and the ranging point migration means to which said ranging point is moved on a real size display.
[Claim 6] Document processing system equipment according to claim 4 or 5 with which both the locations of said radix point and ranging point are characterized by what is memorized in the distance from the endpoint of said real size display.
[Claim 7] Document processing system equipment claim 4 characterized by carrying out digital display of the distance on the printing image between said radix points and ranging points, and given in five.
[Claim 8] Claim 1 characterized by having further a means to calculate the real size at the time of printing the document image displayed on said display screen, and a means to display said printing image on said display screen thru/or document processing system equipment of any one publication of seven.
[Claim 9] It is the document edit approach in the document processing system equipment which can be displayed in the image equivalent to the printing image which prints the created document image. The document edit approach characterized by displaying the real size display showing the real size on a printing image on the document image of a display screen, moving to the distance measurement location of a request of said real size display, and editing a document based on the distance between the predetermined points on the measured printing image.
[Claim 10] The document edit approach according to claim 9 which displays said real size display at an angle of arbitration, and is characterized by the connected segment carrying out document edit based on the measurement result of the distance for two points which accomplishes the include angle of an axis of abscissa and arbitration.
[Claim 11] The document edit approach according to claim 9 that the die length of said real size display is changed into arbitration, and the die length of the connected segment is characterized by carrying out document edit based on the measurement result of the distance between two points of arbitration length.
[Claim 12] The document edit approach according to claim 10 or 11 characterized by displaying the graduation which can measure real size on said real size display, and carrying out document edit based on the measurement result of the distance between predetermined on a printing image.
[Claim 13] The document edit approach according to claim 12 characterized by carrying out document edit based on the measurement result of the distance between predetermined acquired by moving said radix point while displaying the radix point of said graduation on said real size display.
[Claim 14] The document edit approach according to claim 13 characterized by carrying out document edit based on the measurement result of the distance between predetermined acquired by moving said ranging point on a real size display while displaying the ranging point for measuring distance with said radix point on said real size display.
[Claim 15] The document-processing-system equipment with which it is document-processing-system equipment into which a document is edited by reading a predetermined program from a storage and controlling a computer, and said storage is characterized at least by to have a procedure code for displaying the real size display showing the real size on a printing image on the document image of a display screen, and a procedure code for moving said real size display to a desired distance measurement location.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates the auxiliary information-display section which shows document processing system equipment and its document edit approach, especially the real size of the printing image on a screen generally called a ruler to the document processing system equipment which can be displayed, and its document edit approach.
[0002]
[Description of the Prior Art] It became in use with large-capacity-izing and improvement in the speed of a computer in recent years WYSIWYG (What You See Is What You Get) editing [which can be edited while checking the printing image on actual space on CRT] the edit processing in document processing system equipment. In WYSIWYG edit, the alphabetic character displayed on a screen also shifted to the style pitch display using a style font from the conventional fixed pitch display.
[0003]
[Problem(s) to be Solved by the Invention] It became impossible however, for the distance between a certain point in the actual print currently estimated by the conventional fixed pitch display with these document processing system equipments that take a style pitch display, and a certain point to measure to accuracy in the image on a CRT screen. On the other hand, in order to require precise edit of arranging a text, a graphic form, an image, etc. intricately, it is important to measure an exact distance on a printing image also compared with before. For this reason, although the real size display called a ruler on a screen was displayed in all directions [of a document display frame] and the document processing system equipment corresponding to this problem was seen, this is only what displays the gage of real size on a document display frame, and was not able to measure distance for two points of the arbitration in a document image.
[0004] This invention is made in view of this conventional technique, is realizing measuring the distance for two points of the arbitration on a print to accuracy on the display screen, and offers the document processing system equipment which can raise economization of a print sheet and the effectiveness of a user's document editing task, and its document edit approach.
[0005]
[Means for Solving the Problem] It carries out having a display means display the real size display which the document-processing-system equipment of this invention is document-processing-system equipment which can be displayed in the image equivalent to the printing image which prints the created document image, and expresses the real size on a printing image on the document image of a display screen in order to attain the above-mentioned object, and a display modification means change said real size display into the include angle of arbitration as the description.
[0006] Here, directions of a desired measure point are attained by having further a die-length modification means to change the die length of said real size display elastically. Moreover, the exact distance measurement of said display means is attained by displaying further the graduation which can measure real size on said real size display. Moreover, said display means is having a radix point display means displaying the radix point of said graduation on said real size display, and the radix point migration means to which said radix point's is moved, and becomes movable in the location of a request of the radix point of range measurement. Moreover, said display means is having further a ranging point display means displaying the ranging point for measuring distance with said radix point on said real size display, and the ranging point migration means to which said ranging point's is moved on a real size display, and becomes movable in the location of a request of the ranging point of range measurement. Moreover, both the locations of said radix point and ranging point can specify an endpoint and a ranging point independently by memorizing in the distance from the endpoint of said real size display. Moreover, distance can be checked at a glance by carrying out digital display of the distance on the printing image between said radix points and ranging points. Moreover, the display on the display screen of a printing image is attained by having further a means to calculate the real size at the time of printing the document image displayed on said display screen, and a means to display said printing image on said display screen.
[0007] Moreover, the document edit approach of this invention is the document edit approach in the document processing system equipment which can be displayed in the image equivalent to the printing image which prints the created document image. The real size display showing the real size on a printing image is displayed on the document image of a display screen, and it moves to the distance measurement location of a request of said real size display, and is characterized by editing a document based on the distance between the predetermined points on the measured printing image.
[0008] Here, said real size display is displayed at an angle of arbitration, and directions of a desired measure point of the connected segment are attained by carrying out document edit based on the measurement result of the distance for two points which accomplishes the include angle of an axis of abscissa and arbitration. Moreover, the die length of said real size display is changed into arbitration, and directions of a measure point of the die length of the connected segment are attained still more freely by carrying out document edit based on the measurement result of the distance between two points of arbitration length. Moreover, the graduation which can measure real size is displayed on said real size display, and exact distance measurement is attained by carrying out document edit based on the measurement result of the distance between predetermined on a printing image. Moreover, while displaying the radix point of said graduation on said real size display,

based on the measurement result of the distance between predetermined acquired by moving said radix point, it becomes movable in the location of a request of the radix point of range measurement by carrying out document edit. Moreover, while displaying the ranging point for measuring distance with said radix point on said real size display, it becomes movable in the location of a request of the ranging point of range measurement by carrying out document edit based on the measurement result of the distance between predetermined acquired by moving said ranging point on a real size display.
[0009] Moreover, the document-processing-system equipment of this invention is document-processing-system equipment into which a document edits by reading a predetermined program from a storage and controlling a computer, and is characterized by to have a procedure code for said storage to display the real size display which expresses the real size on a printing image at least on the document image of a display screen, and a procedure code for moving said real size display to a desired distance measurement location.
[0010]
[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is further explained to a detail using a drawing. In addition, the document as used in the field of this invention is used as a generic name including a text (a table is also included), a graphic form, an image, an animation, animation, voice, etc.
<Example of configuration of document processing system equipment> drawing 1 is the block diagram showing the example of a system configuration of the document processing system equipment of the gestalt of this operation.
[0011] 1 is a system bus and each configuration block to be explained from now on is connected to this system bus 1. 2 is CPU (Centrtal Processing Unit) which manages control of this equipment. 3 is the program memory (PMEM is called) containing program load field 3a and data storage field 3b, it chooses the program for edit processing from a hard disk 15 or a floppy disk 16 suitably, carries out read in, and performs it by CPU2. Moreover, the data inputted from the keyboard 9 are stored in PMEM3 which is also text memory as code information.
[0012] 8 is the input-control section and the input unit of a keyboard 9 and mouse 10 grade is connected. An operator performs an operating command, a document data input, etc. of a system by operating this keyboard 9. Moreover, the mouse 10 is used as a pointing device (PD is called) for carrying out the processing directions of the image information on CRT13. This moves the cursor on CRT13 in X and the direction of Y at arbitration, choose the command icon on a command menu, and processing is directed, and also directions for edit, directions of a drawing location, etc. are performed. As for video image memory (VRAM is called) and 12, 11 is [the display output-control section and 13] CRT. The data displayed on CRT13 are developed by VRAM top 11 as bit map data. For example, if it is alphabetic data, the character pattern corresponding to the code is developed on VRAM11, and direct cursor is generated in the display area of VRAM11 by software control, and it can display.
[0013] 14 is an external storage control section, for example, 15 is a hard disk (HD is called), and 16 is a floppy disk (FD is called). Moreover, this system transmits a typeface / character-size directions information, a printing location, a character code train, etc. via the communication link port 5 and a communication line 6 from the communications control section 4, and a printer 7 develops a printing bitmapped image to its image memory (IMEM is called) by the character font which it has in the self-inside of a plane based on receipt information, and carries out a printout.
[0014] <Example of document edit of document processing system equipment> drawing 2 is a flow chart which shows the document edit procedure of the document processing system equipment of the gestalt of this operation. At step S30, composition with document information and the real size information on early is performed. That is, the display image when displaying the document information to edit on a screen and the image on the screen of the real size display in the gestalt of this operation are compounded, and it stores in VRAM11. The synthetic image acquired at step S30 is read from VRAM11, and it expresses as step S31 to up to Screen 13.
[0015] At step S32, a display-position change of real size information is made. That is, it means that a user moves a real size display to the location on the screen which wishes to measure. At step S33, document information is edited based on the real size distance measured using the real size display. At step S34, it asks a user whether print the document information after edit. When not printing, it returns to step S32 again. When printing, it shifts to the printing execute step S35, and printing is performed. The above is the flow of document edit.
[0016] The case where the real size display in the above-mentioned step S32 is displayed at an angle of arbitration is explained below.
<Example 1 of the display of real size display> drawing 3 is drawing showing the example of the real size display in this example 1 of a display. In this drawing, 21 is a real size display and the gage in which the die length corresponding to a actual print is shown is displayed. Moreover, 22 is the handle of a real size display. It is possible to display a real size display at an angle of arbitration by a user's moving the pointer which operates a pointing device and is displayed on a CRT screen, and operating this handle suitably.
[0017] Drawing 4 is drawing showing signs that a real size display is displayed at an angle of arbitration. 31 is a document edit display in the gestalt of this operation, and a real size display is usually displayed on the location of 33. However, when a user drags a pointer 32 according to the location of a handle 22, it is possible to display at an angle of arbitration like 34.
[0018] Next, the DS of the interior for realizing this example 1 of a display is explained. Drawing 5 is the DS of the real size display in this example 1 of a display. Like drawing 5 , real size display data consist of height of a real size display, and coordinate data of two handles. Drawing of a up to [the screen of a real size display] is realized by drawing the rectangle which draws a straight line between two handles, makes it a base, and has the height of a real size display. Therefore, by changing the coordinate of these two handles, it is the include angle of all arbitration, and it is possible to draw a real size display elastically.
[0019] Next, in this example 1 of a display, internal processing in the case of displaying a real size display at an angle of arbitration is explained. Drawing 6 is the flow chart of this processing. First, if a user drags the handle of a real size display at step S1, at step S2, the coordinate of Ushiro to whom the system was dragged is scanned and it stores in PMEM3. At step S3, the part of a document edit display which had become the shade of a real size display till now is redrawn. Next, in step S4, the coordinate data stored in PMEM3 at step S2 is stored in the real size display data which exist in PMEM3 top or external storage, such as a hard disk.
[0020] Next, at step S5, it compounds with the bit map which created the bit map data of a new real size display field on

PMEM3, calculated the gage at step S6 and was created at step S5. About the count performed at step S6, it mentions later. Finally the bit map data on PMEM3 are transmitted to VRAM11, and processing is ended.
[0021] Next, the count of a gage performed at step S6 is explained. Drawing 7 is model drawing for explaining this count. In addition, in drawing 7 , it is expressing that the coordinates of Point P are (u, v) as P (u, v). Moreover, in case these coordinates are the system of coordinates (u, v) of the real size unit on a print and display these on CRT, they shall be changed into the system of coordinates (x y) which make the pixel of CRT a unit automatically.
[0022] In drawing 7 , Point P and Point Q model the handle of the ends of a real size display, respectively. Moreover, the radix point of a gage shall be in Point P. It is on Segment PQ on this model, and if the coordinate of the point A (a, b) which only the distance s of arbitration has separated from the radix point P can be searched for, it can prove that a right gage can be displayed in this example 1 of a display.
[0023] The following formula will be materialized if Segment PQ sets U shaft and the angle to make to theta now.
a=s-cos theta+U 1 b=s-sin theta+V 1 -- here, costheta and sintheta are called for with the following value, respectively.
costheta=(U2-U1)/{(U2-U1) 2+(V2-V1) 2} 1/2 sintheta=(V2-V1)/{(U2-U1) 2+(V2-V1) 2} One half Therefore By assigning these values, it is possible to search for the coordinate of the point A on PQ which only distance s separated from the radix point.
[0024] This count can be repeated and a right gage can be displayed on a real size display by changing into the system of coordinates (x y) of a pixel unit.
In the example 1 of a display of the <example 2 of the display of real size display> above-mentioned, although the real size display itself is freely reducible, the gage displayed on it displays the endpoint of one side of the display of real size as a radix point. This example 2 of a display is the case where it has the display frame which carries out digital display of the distance on the actual print between the ranging point which can move the radix point of a gage anywhere on a gage, and a radix point and a ranging point.
[0025] Drawing 8 is drawing showing the example of the real size display in this example 2 of a display. In drawing 8 , the real size display 71 is equipped with the real size digital display section 72, the gage radix point 73, and the ranging point 74 of distance for two points. When the gage radix point 73 and the ranging point 74 operate pointing devices, such as a mouse, respectively and drag them with the pointer on a screen, a gage top can be moved freely. Moreover, the display of a gage changes with the locations of a gage radix point. Furthermore, the distance on the actual print for these two points is numerically displayed on the real size digital display section 72 with migration with a gage radix point and a ranging point.
[0026] Drawing 9 is drawing showing the example of an image of the document edit display in this example 2 of a display. The distance between two on a print still more exact than the case of the example 1 of a display can be promptly grasped by moving a gage radix point and a ranging point by actuation by the pointer 32, and carrying out digital display of the distance for these two points like drawing 9 . Next, the DS of the interior in this example 2 of a display is explained. Drawing 10 is the DS of the real size display in this example 2 of a display.
[0027] In addition to the same element as the thing of the example 1 of a display, the real size display data of this example 2 of a display consist of a gage radix point location and a ranging point location. These two positional information is the distance information from the edge (henceforth an endpoint) of one of the two of a real size display. Therefore, these values are not influenced even if the coordinate of each handle changes. That is, it is not based on the die length or the include angle of a real size display, but these values can be changed independently.
[0028] Next, internal processing in this example 2 of a display is explained. First, the processing which displays the real size display in this example 2 of a display at the die length and the include angle of arbitration is explained. Drawing 11 is the flow chart of the processing which displays a real size display at the die length and the include angle of arbitration in this example 2 of a display. First, if a user's handle drag is detected at step S11, the coordinate of Ushiro's dragged handle will be scanned at step S12. Next, at step S13, the document edit display hidden by the real size display before the drag is maximum-drawn, and the coordinate scanned at step S12 is stored in the real size display data on PMEM3 or enternal memory, such as a hard disk, in step S14.
[0029] Next, at step S15, the bit map data of a real size display field are created on PMEM3, and in step S16, the location data of a gage radix point and a ranging point are loaded to PMEM3, count for a gage display and distance between a radix point and a ranging point are calculated using these data at step S17, the bit map data of a gage are created, and it compounds with the result of step S15. Next, at step S18, the bit map data of a radix point and a ranging point are created, it compounds with the result of step S17, the indicative data of the digital display section is created based on the count result performed at step S16 in step S19, and it compounds with the result of step S18.
[0030] Finally, at step S20, processing is finished by transmitting the bit map data created at step S19 to VRAM11 from PMEM3. Next, below, the processing which moves the gage radix point and the ranging point in this example 2 of a display is explained. It is step S21 first. drawing 12 is a flow chart which shows the procedure which moves a gage radix point and a ranging point -- When a system detects that the user dragged the gage radix point or the ranging point, at step S22 The coordinate after a drag is scanned, from the acquired coordinate, it changes into the coordinate point (U, V) of real size, and the distance from the endpoint of the dragged point is calculated and a count result is stored in the display data on PMEM3 or enternal memory. Next, at step S23, in order to update the CRT display of a real size display, the bit map of a real size display field is created.
[0031] Next, at step S24, it judges whether the radix point was dragged. When a radix point is dragged, step S25 is processed. At step S25, since the radix point is moving, count for a gage display is newly performed, and processing moves to step S26. When a ranging point is dragged, processing moves to the direct step S26. At step S26, the bit map of a gage is created and it compounds with the result of step S23. Next, at step S27, after calculating the distance of an origin and a ranging point, the bit map of an origin and a ranging point is created and it compounds with the result of step S26. Furthermore, at step S28, the bit map of the digital display section is created based on the count result performed at step S27, and it compounds with the result of step S27. Finally, at step S29, the completed bit map data are transmitted to VRAM11 from PMEM3, and processing is finished.
[0032] In addition, even if it applies this invention to the system which consists of two or more devices, it may be applied to the equipment which consists of one device. Moreover, it cannot be overemphasized that this invention can be applied also

when attained by supplying a program to a system or equipment. In this case, the storage which stored the program concerning this invention will constitute this invention. And the system or equipment operates by the method defined beforehand by reading the program from this storage to a system or equipment.

[0033]

[Effect of the Invention] While according to this invention being able to acquire the distance between two on a print on the image displayed on a CRT screen and being able to save the print sheet even if not actually printed by displaying a real size display at an angle of arbitration as explained above, it became possible to realize much more effectiveness rise of a document editing task.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the block diagram showing the example of a system configuration of the document processing system equipment of the gestalt of this operation.
[Drawing 2] It is the flow chart which shows the edit procedure of the document processing system equipment of the gestalt of this operation.
[Drawing 3] It is drawing showing the image of the real size display in the example 1 of a display.
[Drawing 4] It is drawing showing the image of the document edit display in the example 1 of a display.
[Drawing 5] It is drawing showing the data for a display of the real size display in the example 1 of a display.
[Drawing 6] It is the flow chart of the processing which displays elastically the real size display in the example 1 of a display at an angle of arbitration.
[Drawing 7] It is drawing showing the model of the gage count in the example 1 of a display.
[Drawing 8] It is drawing showing the image of the real size display in the example 2 of a display.
[Drawing 9] ****** which shows image ** of the document edit display in the example 2 of a display.
[Drawing 10] It is drawing showing the real size display data in the example 2 of a display.
[Drawing 11] It is the flow chart of the processing which displays elastically the real size display in the example 2 of a display at an angle of arbitration.
[Drawing 12] It is the flow chart of processing at the time of moving the radix point or the ranging point of a real size display in the example 2 of a display.

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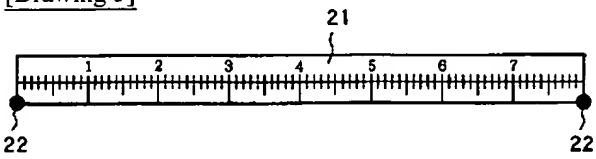
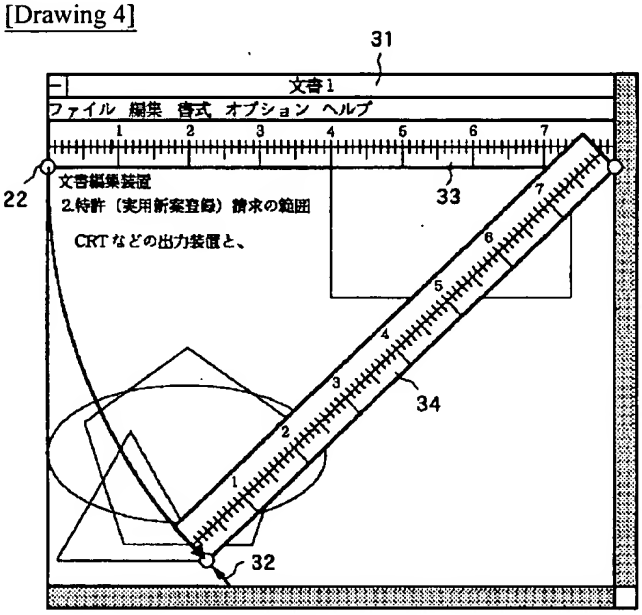
DRAWINGS

[Drawing 3]



[Drawing 4]

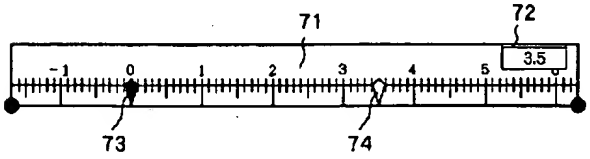


[Drawing 5]

実サイズ表示部データ

実サイズ表示部の高さ
ハンドル1座標（x1, y1）
ハンドル2座標（x2, y2）

[Drawing 8]

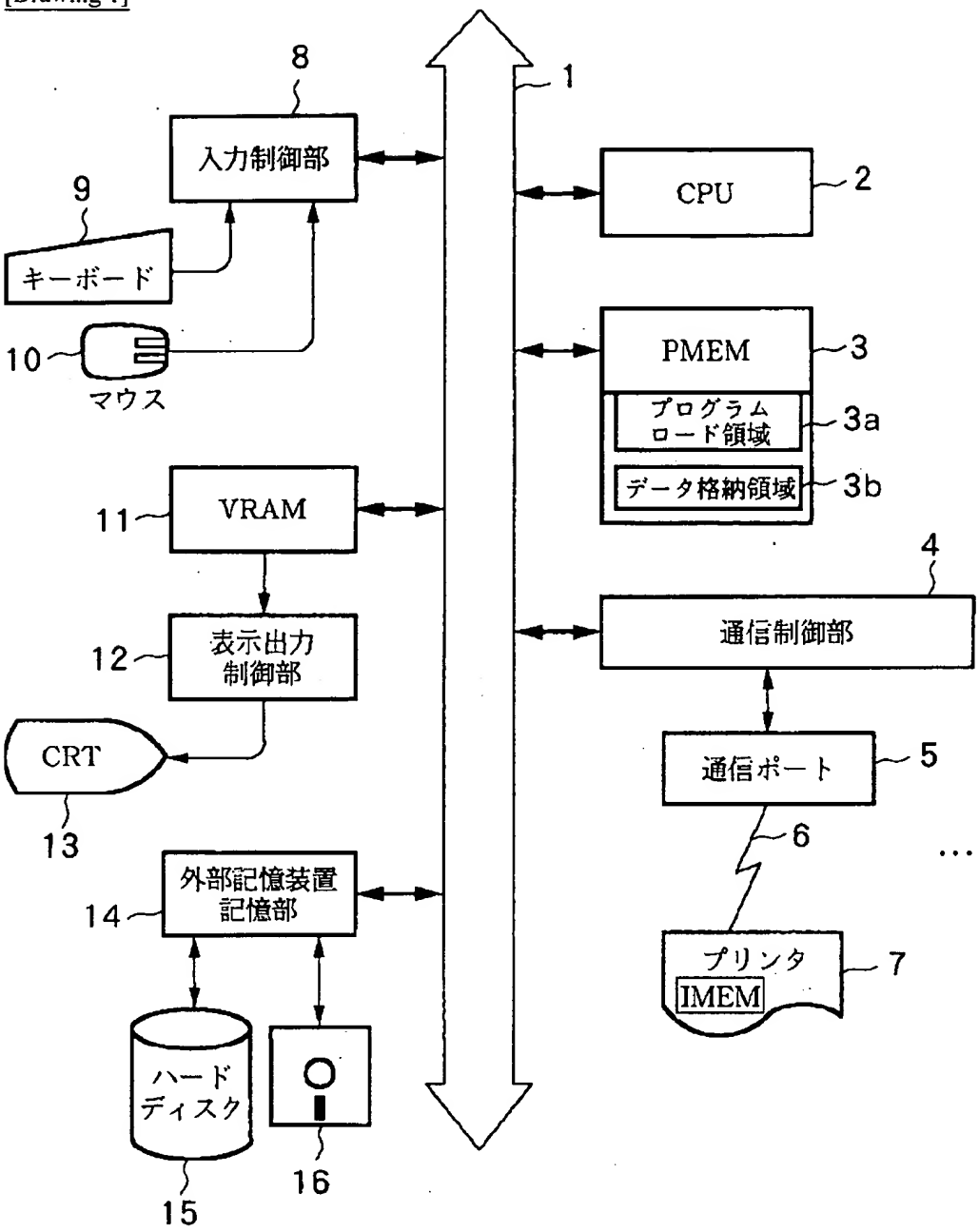


[Drawing 10]

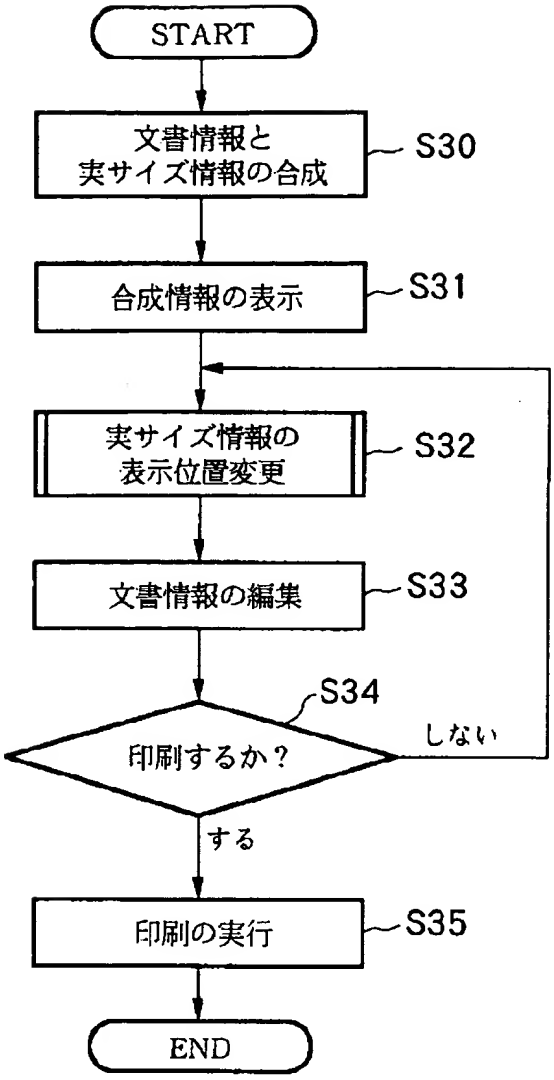
実サイズ表示部データ

実サイズ表示部の高さ
ハンドル1座標（x1, y1）
ハンドル2座標（x2, y2）
ゲージ基点位置（距離）
測距点位置（距離）

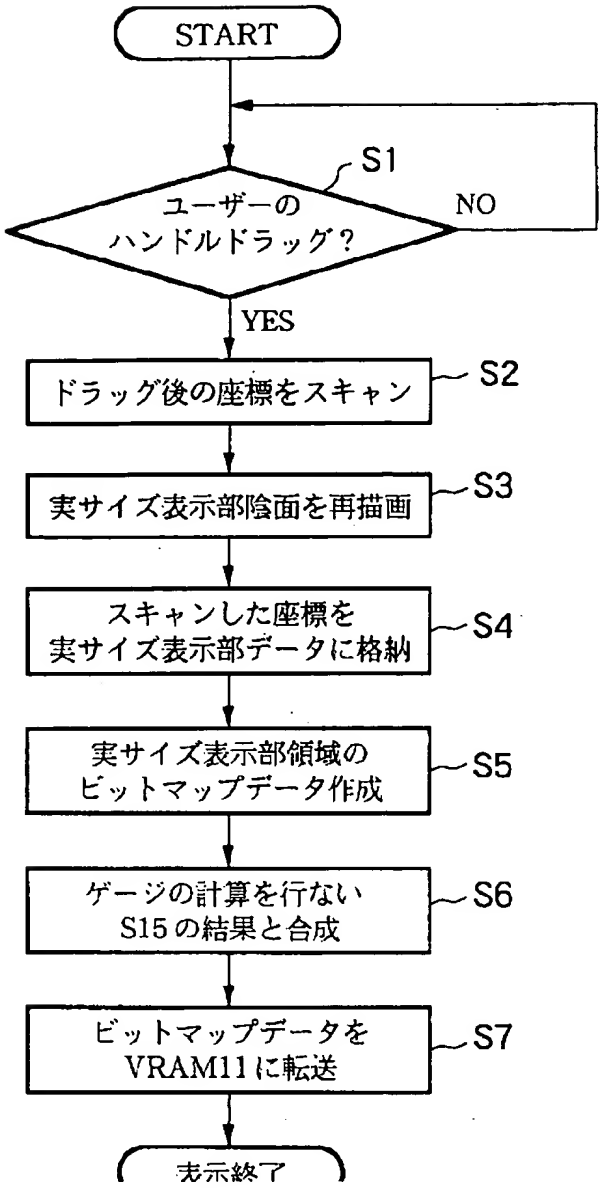
[Drawing 1]



[Drawing 2]


START
文書情報と
実サイズ情報の合成
S30
合成情報の表示
S31
実サイズ情報の
表示位置変更
S32
文書情報の編集
S33
S34
印刷するか？
しない
する
印刷の実行
S35
END

[Drawing 6]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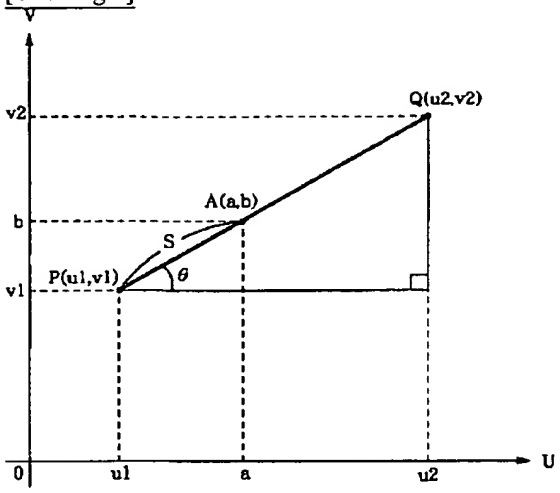
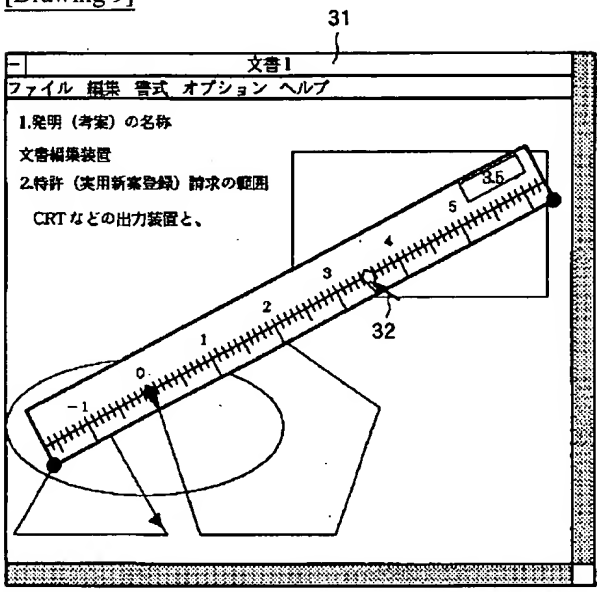
S1
ユーザーの
ハンドルドラッグ？
NO
YES
ドラッグ後の座標をスキャン
S2
実サイズ表示部陰面を再描画
S3
スキャンした座標を
実サイズ表示部データに格納
S4
実サイズ表示部領域の
ビットマップデータ作成
S5
ゲージの計算を行ない
S15の結果と合成
S6
ビットマップデータを
VRAM11に転送
S7
表示終了

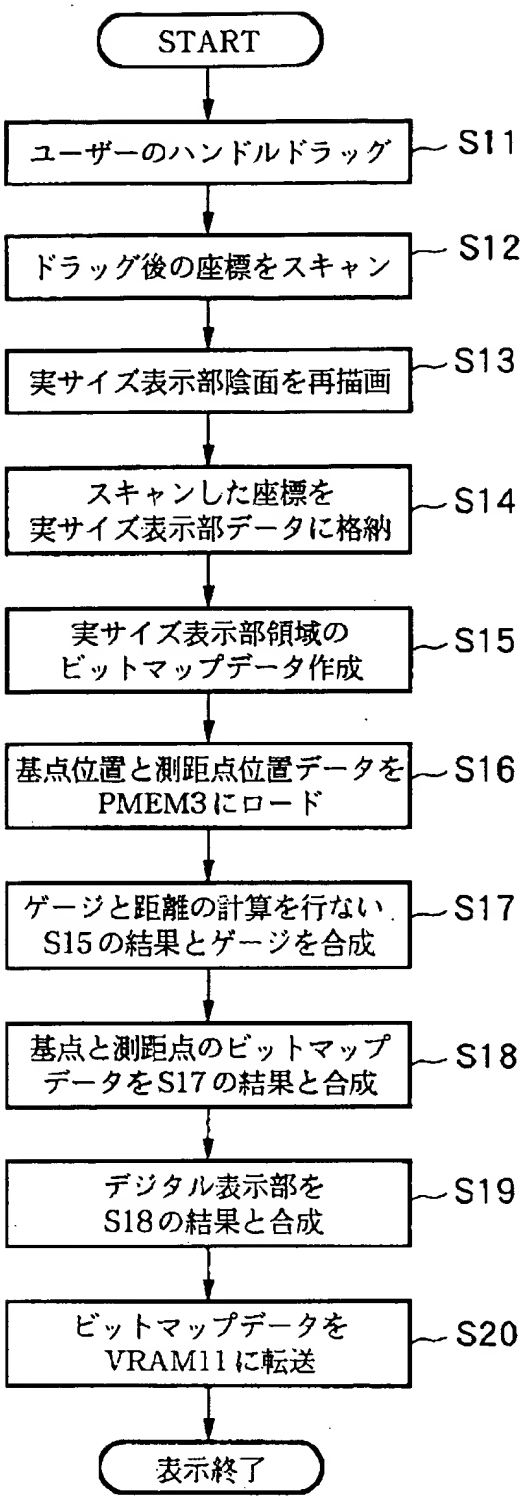
[Drawing 7]



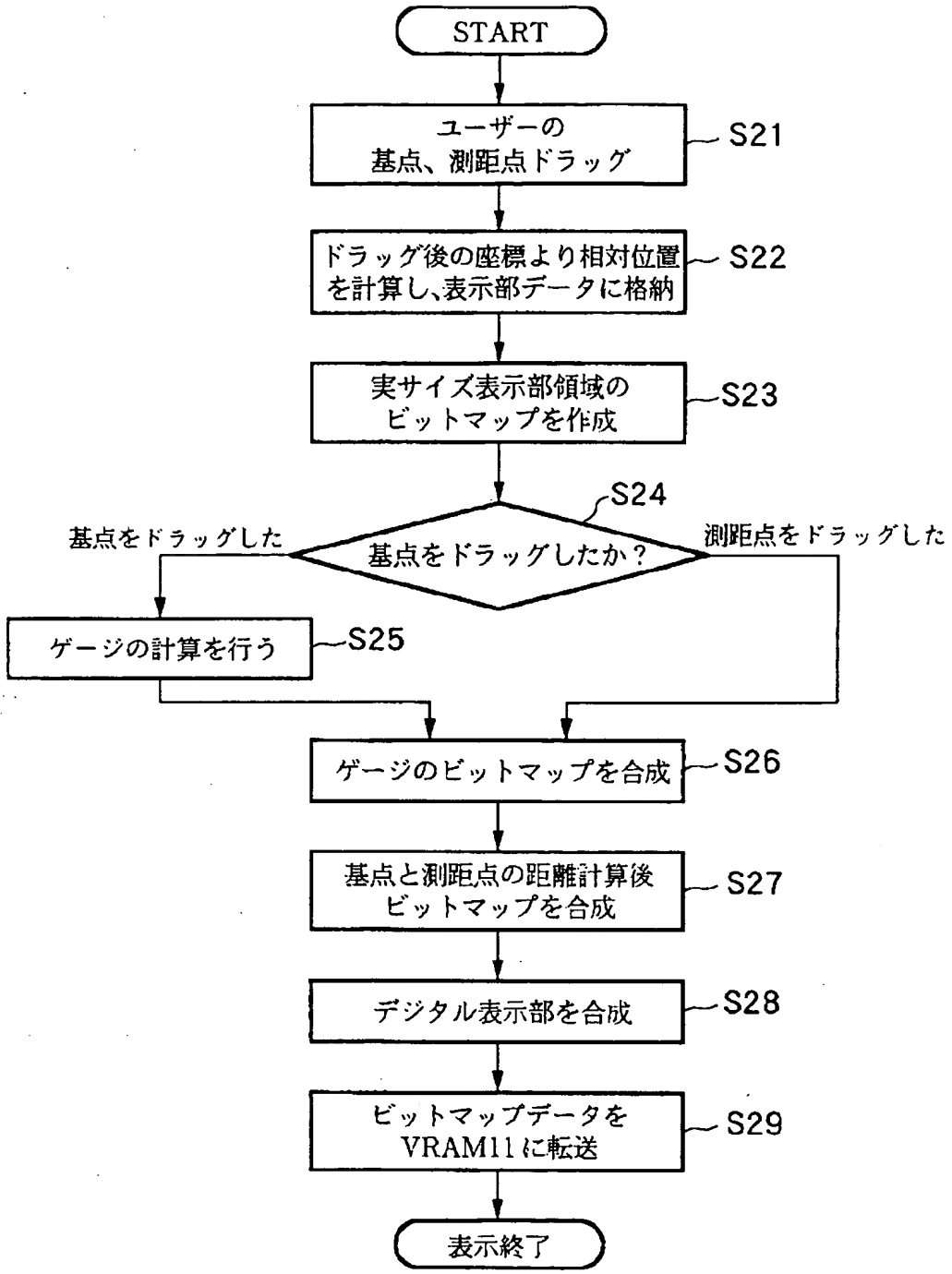
[Drawing 9]



[Drawing 11]


START
ユーザーのハンドルドラッグ
S11
ドラッグ後の座標をスキャン
S12
実サイズ表示部陰面を再描画
S13
スキャンした座標を
実サイズ表示部データに格納
S14
実サイズ表示部領域の
ビットマップデータ作成
S15
基点位置と測距点位置データを
PMEM3にロード
S16
ゲージと距離の計算を行ない
S15の結果とゲージを合成
S17
基点と測距点のビットマップ
データをS17の結果と合成
S18
デジタル表示部を
S18の結果と合成
S19
ビットマップデータを
VRAM11に転送
S20
表示終了

[Drawing 12]



[Translation done.]